



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,526	02/02/2005	Hasse Sinivaara	60282.00226	6794

32294 7590 04/24/2007
SQUIRE, SANDERS & DEMPSEY L.L.P.
14TH FLOOR
8000 TOWERS CRESCENT
TYSONS CORNER, VA 22182

EXAMINER

LY, NGHI H

ART UNIT PAPER NUMBER

2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/518,526	Applicant(s) SINIVAARA, HASSE	
	Examiner Nghi H. Ly	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8-19, 21-32 and 34-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Pinard et al (US 5,815,811).

Regarding claims 1, 14, 24, 27, 40-42 and 46, Pinard teaches method of load balancing in a wireless communication network, said wireless communication network comprising at least one subscriber terminal (T1, T2, T2) adapted to establish and perform a wireless communication connection in said wireless communication network (see Abstract), a plurality of access points (AP1, AP2, AP3) adapted to control said wireless communication connection of said at least one subscriber terminal and to exchange information with said at least one subscriber terminal (see Abstract, column 3, lines 31-51 and column 5, line 65 to column 6, line 13), wherein one of said plurality of access points is associated with said at least one subscriber terminal, and a load control device (21; 110) located outside of said subscriber terminal (see column 3, lines 14-21 and column 3, lines 31-51), said load control device being adapted to process information related to a load in said wireless communication network and to instruct roaming of said subscriber terminal from said associated one of said plurality of access points to another one of said plurality of access points (see column 3, lines 14-21 and

Art Unit: 2617

column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), said method comprising the steps of receiving, in said subscriber terminal, access point status information (APST) determined in said plurality of access points (S10; S110) (see column 3, lines 14-21 and column 3, lines 31-51), determining communication status information related to said plurality of access points (S20; S120), and processing (S20; S120) said received access point status information and said communication status information in order to obtain roaming support information (RSUP) (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), processing (S40; S160), in said load control device (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), said roaming support information by an access point related load based roaming analysis and deciding (S50; S170) (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), on the basis of a result of said access point related load based roaming analysis (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), whether said subscriber terminal is to be associated with another one of said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), and if so, initializing (S60; S180) roaming of said subscriber terminal to said another one of said plurality of access points in said wireless communication network

Art Unit: 2617

(see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 2, Pinard teaches the access point status information (APST) comprises an access point identification element and an access point load status indicator determined in a respective access point (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 3, Pinard teaches the step of determining communication status information, a received signal strength indicator (RSSI) indicating the received signal strength of said plurality of access points is determined (see Abstract and column 3, lines 31-51).

Regarding claim 4, Pinard teaches the step of determining communication status information, a carrier to interference ratio (C/I) per each access point is determined (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 5, Pinard teaches the step of determining communication status information, a terminal transmit power status is determined (see Abstract and column 3, lines 31-51).

Regarding claim 6, Pinard teaches the roaming support information (RSUP), obtained in said step of processing said received access point status information and said communication status information, comprises statistics of access point related communication status and load information derived from said received access point status information (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 8, Pinard teaches processing parameters used in said access point related load based roaming analysis and derived from said roaming support information (RSUP) are differently weighted in said access point related load based roaming analysis (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 9, Pinard teaches the load control device (21) is located in at least one of said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 10, Pinard teaches the load control device (110) is located in a network element (100) separated from said plurality of access points, said network element being connected with said plurality of access points in said wireless communication network (see Abstract and column 3, lines 31-51).

Regarding claims 11 and 37, Pinard teaches comprising the steps of transmitting (S140) access point internal monitoring information (APIM) from said plurality of access points to said load control device (110) in said network element (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), determining (S150), in said load control device, access points available for said subscriber terminal and selecting access point internal monitoring information of said available access points, processing (S 160) (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), in said load control

Art Unit: 2617

device, said roaming support information (RSUP) and said selected access point internal monitoring information (APIM) by an enhanced access point related load based roaming analysis and deciding (S170) (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), on the basis of a result of said enhanced access point related load based roaming analysis (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21), whether said subscriber terminal is to be associated with another one of said plurality of access points, and if so, initializing (S 180) roaming of said subscriber terminal to said another one of said plurality of access points in said wireless communication network (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 12, Pinard teaches the access point internal monitoring information (APIM) comprises at least one of a retransmit rate to associated subscriber terminals, back-off windows, and a net allocation vector for a respective one of said plurality of access points (see Abstract and column 3, lines 31-51).

Regarding claim 13, Pinard teaches processing parameters used in said enhanced access point related load based roaming analysis and derived from said roaming support information and said selected access point internal monitoring information are differently weighted in said enhanced access point related load based roaming analysis (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 15, Pinard teaches the access point status information (APST) comprises an access point identification element and an access point load status indicator determined in a respective access point (see Abstract and column 3, lines 31-51).

Regarding claim 16, Pinard teaches the roaming support means is adapted to determine a received signal strength indicator indicating the received signal strength of said plurality of access points (see Abstract and column 3, lines 31-51).

Regarding claim 17, Pinard teaches roaming support means is adapted to determine a carrier to interference ratio per each access point (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 18, Pinard teaches roaming support means is adapted to determine a terminal transmit power status (see Abstract and column 3, lines 31-51).

Regarding claim 19, Pinard teaches roaming support information obtained in and transmitted from said roaming support means comprises statistics of access point related communication status and load information derived from said received access point status information (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 21, Pinard teaches the load control device is adapted to differently weight processing parameters used in said access point related load based roaming analysis and derived from said roaming support information (see Abstract).

Regarding claim 22, Pinard teaches the load control device (21) is located in at

Art Unit: 2617

least one of said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 23, Pinard teaches the load control device (110) is located in a network element (100) separated from said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51), said network element being connected with said plurality of access points in said wireless communication network (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 25, Pinard teaches the access point internal monitoring information comprises at least one of a retransmit rate to associated subscriber terminals, back-off windows, and a net allocation vector for a respective one of said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 26, Pinard teaches the load control device is adapted to differently weight processing parameters used in said enhanced access point related load based roaming analysis and derived from said roaming support information and said selected access point internal monitoring information (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 28, Pinard teaches the access point status information comprises an access point identification element and an access point load status indicator determined in a respective access point (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 29, Pinard teaches the roaming support information comprises at least a received signal strength indicator indicating the received signal strength of

Art Unit: 2617

said plurality of access points (see Abstract and column 3, lines 31-51).

Regarding claim 30, Pinard teaches roaming support information comprises at least a carrier to interference ratio per each access point (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 31, Pinard teaches roaming support information comprises at least a terminal transmit power status (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 32, Pinard teaches roaming support information comprises statistics of access point related communication status and load information derived from said access point status information (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 34, Pinard teaches the load control device is adapted to differently weight processing parameters used in said access point related load based roaming analysis and derived from said roaming support information (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 35, Pinard teaches the load control device (21) is located in at least one of said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51).

Art Unit: 2617

Regarding claim 36, Pinard teaches the load control device (110) is located in a network element (100) separated from said plurality of access points (see column 3, lines 14-21 and column 3, lines 31-51), said network element being connected with said plurality of access points in said wireless communication network (see column 3, lines 14-21 and column 3, lines 31-51).

Regarding claim 38, Pinard teaches the access point internal monitoring information comprises at least one of a retransmit rate to associated subscriber terminals, back-off windows, and a net allocation vector for a respective one of said plurality of access points (see column 1, lines 39-42).

Regarding claim 39, Pinard teaches the load control device is adapted to differently weight processing parameters used in said enhanced access point related load based roaming analysis and derived from said roaming support information and said selected access point internal monitoring information (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21).

Regarding claim 43, Pinard teaches computer program product usable for a data processing apparatus, comprising software code portions for performing the steps of claim 1 when said product is run on said data processing apparatus (see column 4, lines 31-36).

Regarding claim 44, Pinard teaches a computer program product according to claim 43, wherein said computer program product comprises a medium readable by said data processing apparatus, on which said software code portions are stored (see

Art Unit: 2617

column 4, lines 31-36).

Regarding claim 45, Pinard teaches a computer program product according to claim 43, wherein said computer program product is directly loadable into an internal memory of said data processing apparatus (see column 4, lines 31-36).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 20 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinard et al (US 5,815,811) in view of Elvin et al (US 6,148,210).

Regarding claims 7, 20 and 33, Pinard teaches the step of processing, in said load control device (see Abstract), said roaming support information by said access point related load based roaming analysis (see column 3, lines 14-21 and column 3, lines 31-51, also see column 1, lines 46-61, column 1, line 63 to column 2, line 5 and column 3, lines 14-21, also see (see column 3, lines 14-21 and column 3, lines 31-51).

Pinard does not specifically disclose a hand-off algorithm is used to calculate load and connection quality situations for said plurality of access points on the basis of said roaming support information and to determine an optimal access point for being associated with said subscriber terminal.

Elvin teaches a hand-off algorithm is used to calculate load and connection

quality situations for said plurality of access points on the basis of said roaming support information and to determine an optimal access point for being associated with said subscriber terminal (see Abstract and column 10, lines 13-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Elvin into the system of Pinard in order to provide a technique that is useful for incoming calls from a wireline network (see Elvin, Abstract).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (571) 272-7911. The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 10/518,526

Page 13

Art Unit: 2617

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nghi H. Ly

A handwritten signature in black ink, appearing to be 'Nghi H. Ly', written in a cursive style.